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REMARKS

Claims 1-5, 28, 29 and 35-37 are currently pending in the subject application and are presently under consideration. Claims 1, 28, and 35-37 have been amended herein – these amendments do not raise any new issues requiring further search or consideration over that of claims already substantively examined. Accordingly, entry and consideration of these amendments is respectfully requested. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1, 2, 4, 5, and 35-37 Under 35 U.S.C. §103(a)

Claims 1, 2, 4, 5 and 35-37 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Maguire *et al.* (US 6,038,525) in view of Robinson *et al.* (US 6,541,783). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Neither Maguire *et al.* nor Robinson *et al.* teach or suggest all the claim limitations of the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art and not based on the Applicant's disclosure. See *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicant's claimed invention relates to a system and method to facilitate the monitoring of defects and impurities in thin films and controlling thin film deposition in semiconductor manufacturing. Specifically, independent claims 1, 28 and 35-37 recite a

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processor that partitions a mask into a plurality of grid blocks and determines deposition parameter adjustments for the one or more deposition components. By monitoring thin film deposition at the plurality of grid blocks mapped on a semiconductor wafer, an increase in thin film uniformity, consistency, quality, yield, and reliability can be achieved. Maguire *et al.* and Robinson *et al.*, either alone or in combination, do not teach or disclose these novel aspects of applicants' claimed invention.

Maguire *et al.* relates to controlling a pulsed laser deposition process where a Raman spectroscope is used to acquire data from a substrate as it is being coated with a film. *See abstract.* Specifically, the cited reference discloses a processor that analyzes the Raman spectroscope data in order determine the current thickness of the film. *See col. 4, lines 39-41.* However, the cited reference is silent towards partitioning a mask of the substrate into a plurality of grid blocks mapped to portions of the substrate in order to determine deposition parameter adjustments, as claimed in applicants' invention.

The Examiner uses Robinson *et al.* to overcome the deficiencies of Maguire *et al.* The Examiner states that Robinson *et al.* teaches that the processor partitions the mask into a plurality of grid blocks and makes a determination of deposition conditions at the one or more grid blocks.

Robinson *et al.* relates to a reticle incorporating scattering features for electron beam projection lithography. *See abstract.* Specifically, Robinson *et al.* discloses *physically* etching a substrate from the side opposite the deposited or grown layers in sub-field areas to yield a desired membrane thickness between a grid of struts which enhance physical robustness of the reticle mask. *See col. 11, lines 40-43.* Thus, Robinson *et al.* discloses a *physical partitioning of a mask*. However, Robinson *et al.* is silent towards using a processor to *conceptually partition a mask* into a plurality of grid blocks mapped on a wafer. Accordingly, Robinson *et al.* fails to teach or suggest applicants' claimed invention. Therefore, withdrawal of this rejection is respectfully requested.

Robinson *et al.* does not describe a processor that partitions a mask into a plurality of grid blocks. Robinson *et al.* describes a *physical partitioning of the mask* by etching away from the side opposite the deposited or grown layer(s) in sub-field areas to

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yield a desired membrane thickness between a grid of struts, which enhance the physical robustness of the reticle mask (col. 11, lines 40-44).

The *claimed partitioning does not physically partition the mask* by etching away from the side opposite the deposited or grown layer. The processor uses the grid block portions for mapping purposes only; there is no physical partitioning of the mask. The processor uses the grid block portions as a conceptual reference map for locating improperly deposited thin film. As the specification state on page 15, lines 3-4, each grid block portion is individually monitored for thin film properties, (e.g. thickness, uniformity, presence of defects, presence of impurities). In short, the claimed partitioning is a *conceptual* reference map for locating improperly deposited thin film, whereas Robinson *et al.* describes a *physical* pattern of grid struts that enhance the physical robustness of the reticle mask. Therefore, Robinson *et al.* cannot teach or suggest a conceptual reference map for locating improperly deposited thin film.

The Examiner asserts it would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Maguire *et al.* to include the teachings of Robinson *et al.* because partitioning the mask and determining thickness at the grid blocks would have allowed the skilled artisan to enhance the physical robustness of the reticle mask. The applicants' representative respectfully disagrees for at least the following reasons.

One skilled in the art would not have been motivated to combine the grid struts for enhanced physical robustness of the mask of Robinson *et al.* with the thin film scatterometry of Maguire *et al.* If a reference is cited that requires some modification in order to meet the claimed invention or requires some modification in order to be properly combined with another reference and such a modification destroys the purpose or function of the invention disclosed in the reference, one of ordinary skill in the art would not have found a reason to make the claimed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Robinson *et al.* physically partitions a mask with grid struts to enhance the physical robustness of the mask. The claimed partitioning conceptually partitions the mask into grid blocks to locate improperly deposited thin film, which does not enhance the physical robustness of the mask. Because the claimed partitioning destroys the purpose or function of Robinson *et al.* (*i.e.*, enhancing the

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physical robustness of the mask with grid struts), one of ordinary skill in the art would not have found a reason to make the claimed modification.

Furthermore, Robinson *et al.* teaches away from the claimed partitioning because it is unlikely that enhancing physical robustness of the mask will produce a conceptual reference map to locate improperly deposited thin film. A "reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). The line of development flowing from Robinson's disclosure (*i.e.*, enhancing the physical robustness of the mask) is unlikely to be productive of the result sought (*i.e.*, creating a conceptual reference map for locating improperly deposited thin film). Because Robinson *et al.* teaches away from the claimed partitioning, the claimed partitioning is non-obvious. *See, e.g., In re Dow Chemical Co.*, 837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988) (teaching away is a *per se* demonstration of non-obviousness).

Moreover, the Examiner's rationale proffered to combine such teachings is to achieve benefits identified in applicant's specification, to overcome problems associated with conventional methods, etc. This is an unacceptable and improper basis for a rejection under 35 U.S.C. §103. In essence, the Examiner is basing the rejection on the assertion that it would have been obvious to do something not suggested in the art because so doing would provide advantages stated in applicant's specification. This sort of rationale has been condemned by the CAFC. *See, e.g., Panduit Corp. v. Dennison Manufacturing Co.*, 1 USPQ2d 1593 (Fed. Cir. 1987). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 USPQ2d (BNA) 1596 (Fed. Cir. 1988) (citations omitted).

In view of at least the foregoing, it is readily apparent that Maguire *et al.*, considered individually or in combination with Robinson *et al.*, does not teach or suggest all aspects of the subject claims and, thus, fails to render the claimed invention obvious. Accordingly, it is respectfully submitted that this rejection should be withdrawn.

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II. Rejection of Claim 3 Under 35 U.S.C. §103(a)

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Maguire *et al.* (US 6,038,525) in view of Robinson *et al.* (US 6,541,783) and further in view of Moslehi (US 5,270,222). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Because claim 3 depends from claim 1, and independent claim 1 is non-obvious, claim 3 is similarly non-obvious. Accordingly, it is respectfully submitted that this rejection should be withdrawn.

III. Rejection of Claims 28 and 29 Under 35 U.S.C. §103(a)

Claims 28 and 29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Maguire *et al.* (US 6,038,525) in view of Gevelber *et al.* (US 6,162,488) and further in view of Robinson *et al.* (U.S. 6,541,783). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Maguire *et al.*, Gevelber *et al.* and Robinson *et al.*, individually or in combination, do not teach or suggest each and every element set forth in the subject claims. In particular, Gevelber *et al.* does not make up the aforementioned deficiencies of Maguire *et al.* and Robinson *et al.* with respect to independent claim 28 (*i.e.*, using a processor to partition the thin film into one or more grid blocks). Claim 29 depends from independent claim 28. Therefore, the subject invention as recited in claims 28 and 29 is not obvious over the combination of Maguire *et al.*, Gevelber *et al.* and Robinson *et al.* Thus, it is respectfully submitted that this rejection be withdrawn.

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CONCLUSION

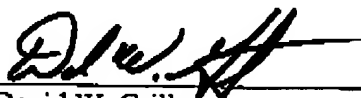
The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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